MAKAROV, F.F.; SAFONOVA, Z.V.

Use of oxidized highly hydrogenated petroleum fractions of isostructural carbohydrates for leather stuffing. Kozh.obuv. prom. 4 no.8:18-20 Ag '62. (MIRA 15:8)
(Leather) (Petroleum products)

METELKIN, A.I., kand.tekhn.nauk; KUZ'MINA, Ye.V.; MAKAROV, F.F.

Using syntan in neutralizing chrome leather. Biul.tekh.-ekon.inform.-Gos.nauch.-issl.inst.nauch. i tekh.inform. no.7:54-56 '58.
(MIRA 15:7)

(Tanning) (Tanning materials)

MAKAROV, F. F.

Using oxidized high-hydrogenated petroleum fractions of isostructural hydrocarbons (oxidate) for fat-liquoring of hides. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh. inform. no.10:50-52 '62. (MIRA 15:10)

(Tanning) (Hydrocarbons)

MAKAROV, F. G.

Mechanizing the chamfering of noncircular holes. Mashinostroitel' no.10:6 '62. (MIRA 15:10)

(Machine-shop practice)

MAKAROV, F.G.

Machining tails of turbine blades. Mashinostroitel' no.6:40 Je '62. (MIRA 16:5)

(Turning)

MAKAROV, F.G.

Universal attachment with the use of hydroplastics. Mashinostroitel' no.1:30 Ja '63. (MIRA 16:2)
(Milling machines—Attachments)

L 10032-67 EWT(1)
ACC NR: AP6022904 SOURCE CODE: UR/0292/66/000/004/0007/0010

AUTHOR: Gol'dberg, O. D. (Candidate of technical sciences); Makarov, F. K. (Engineer) 35

ORG: none

TITLE: Enhancing the reliability of induction-motor windings by their proper design 21

SOURCE: Elektrotekhnika, no. 4, 1966, 7-10

TOPIC TAGS: electric motor, induction motor, reliability, electric rotating equipment

ABSTRACT: Experience with induction motors in the Vladimir City recorded during 1964-65 has shown that about 35% of all motor failures were due to faults in their windings. Mush winding in semiclosed stator slots made by hand from enamelled wire was found to have numerous insulation defects which later were

Card 1/2 UDC: 621.313.333.025.3.001.2

L 10032-67
ACC NR: AP6022904

responsible for winding faults. Hence, the article suggests that the stator slots be made open, machine-manufactured coils be embedded into the slots, and magnetic wedges be used for locking the coils and improving the motor characteristics. Tabulated test data of such an experimental motor (A051-2, 4.5 kw, 3000 rpm) proves that its characteristics are practically as good as those of the semiclosed-slot-type motor. These characteristics are found to be superior to those of CEM (a French company) induction motors which have open slots but no magnetic wedges. The open-slot-magnetic-wedge design is recommended for series A3 and AO3 Soviet-made induction motors. Orig. art. has: 4 figures, 1 formula, and 3 tables.

SUB CODE: 09/ SUBM DATE: none / ORIG REF: 006

Card 2/2 egk

MAKAROV, F. N

USSR/Miscellaneous - Gear cutting

Card : 1/1

Authors : Makarov, F. N.

Title : A device for cutting bevel spur gears.

Periodical : Stan i instr., 3, 33, Mar 1954

Abstract : A device, designed by F. N. Kharlamov, for cutting bevel spur gears manually. A diagram illustrates construction of the device.

Institution : .....

Submitted : .....

MAKAROV, F.N., red.; BERG, L.V., st. nauchn. sotr., red.

{Materials of the [illegible] Technological Conference on the Problems in the Development of Machinery for Mountain Lumbering Camps and in the Increase of Labor Productivity} Materialy [illegible] nauchno-tekhnicheskoi konferentsii po voprosam sozdaniia [illegible] i povysheniia proizvoditel'nosti truda. Krasnodar, Izd-vo "Sovetskaia Kuban'," [illegible] p. [illegible]

1. Nauchno-tekhnicheskaya konferentsiya po voprosam sozdaniya tekhniki gornykh lesozagotovok i povysheniya proizvoditel'nosti truda, 1st. 2. Nauchnaya laboratoriya Kavkazskogo filiala Tsentral'nogo nauchno-issledovatel'skogo instituta mekhanizatsii i energetiki lesnoy promyshlennosti (for Makarov). 3. Kavkazskiy filial Tsentral'nogo nauchno-issledovatel'skogo instituta mekhanizatsii i energetiki lesnoy promyshlennosti (for Berg).

GOL'TSOV, Vladimir, komandir korablya; MAKAROV, Fedor Timofeyevich; BORDACHEV, Vladimir, komandir samoleta, komsomolets; NAYDENOVA, Valentina; IVANOV, Boris Mikhaylovich; KULIKOVA, Galina, inzh; KARPYCHEVA, Alla, inzh.-ekonomist; GRIGOR'YEV, G.

By the call of conscience. Grazhd. av. 21 no.6:12-13 Je '64. (MIRA 17:8)

1. Sekretar' podrazdeleniya Vsesoyuznogo Leninskogo kommunisticheskogo soyuza molodezhi pri Bykovskom ob"yedinennom aviapodrazdelenii (for Gol'tsov). 2. Zamestitel' komandira Bykovskogo ob"yedinennogo aviapodrazdeleniya po politchasti aviatsii spetsial'nogo primeneniya (for Makarov). 3. Chlen komsomol'skogo shtaba "Za kul'turnoye obsluzhivaniye passazhirov" pri Bykovskom ob"yedinennom aviapodrazdelenii (for Naydenova). 4. Nachal'nik Linaynoy ekspluatatsionno-remontnoy masterskoy Bykovskogo ob"yedinennogo aviapodrazdeleniya (for Ivanov). 5. Chleny komiteta Vsesoyuznogo Leninskogo kommunisticheskogo soyuza molodezhi, Bykovskoye ob"yedinennoye aviapodrazdeleniye (for Kulikova, Karpycheva). 6. Spetsial'nyy korrespondent zhurnala "Grazhdanskaya aviatsiya" (for Grigor'yev).

MAKAROV, G.D., inzh.

Spatial analysis of panel buildings. Nov.v stroi.tekh. no.13: 5-39 '59. (MIRA 13:4)
(Precast concrete construction)

NIKOLAYEV, A.I.; AKHMADIYEVA, A.Kh.; MAKAROV, G.F.

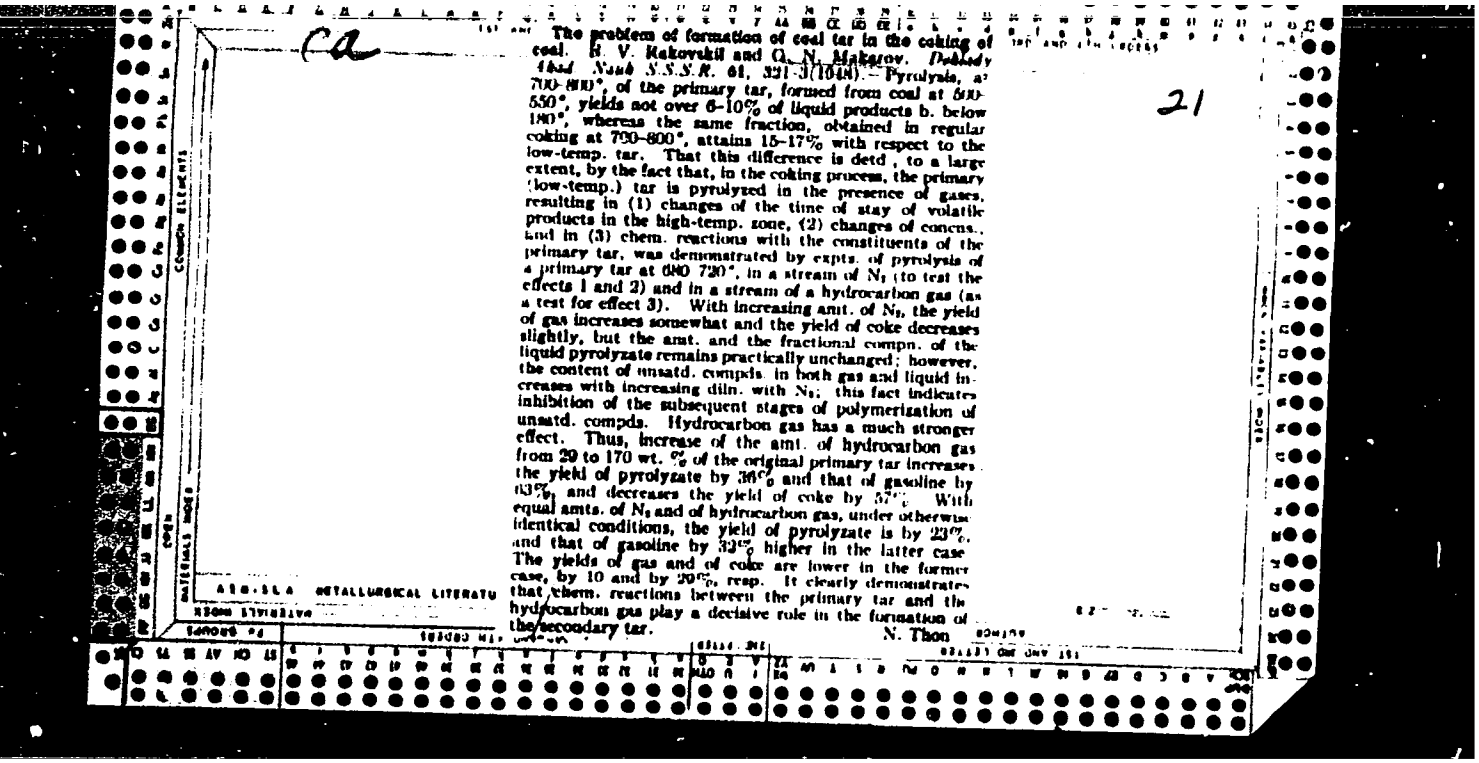
Formation of antibodies to sarcolysine and their effect on the antineoplastic activity of the preparation. Biul. eksp. biol. i med. 60 no.7:95-98 Jl '65. (MIRA 18:8)

1. Uzbekskiy nauchno-issledovatel'skiy institut onkologii i radiologii i onkologii (direktor - prof. I.M. Abdurasulov), Tashkent.

MAKAROV G. N.

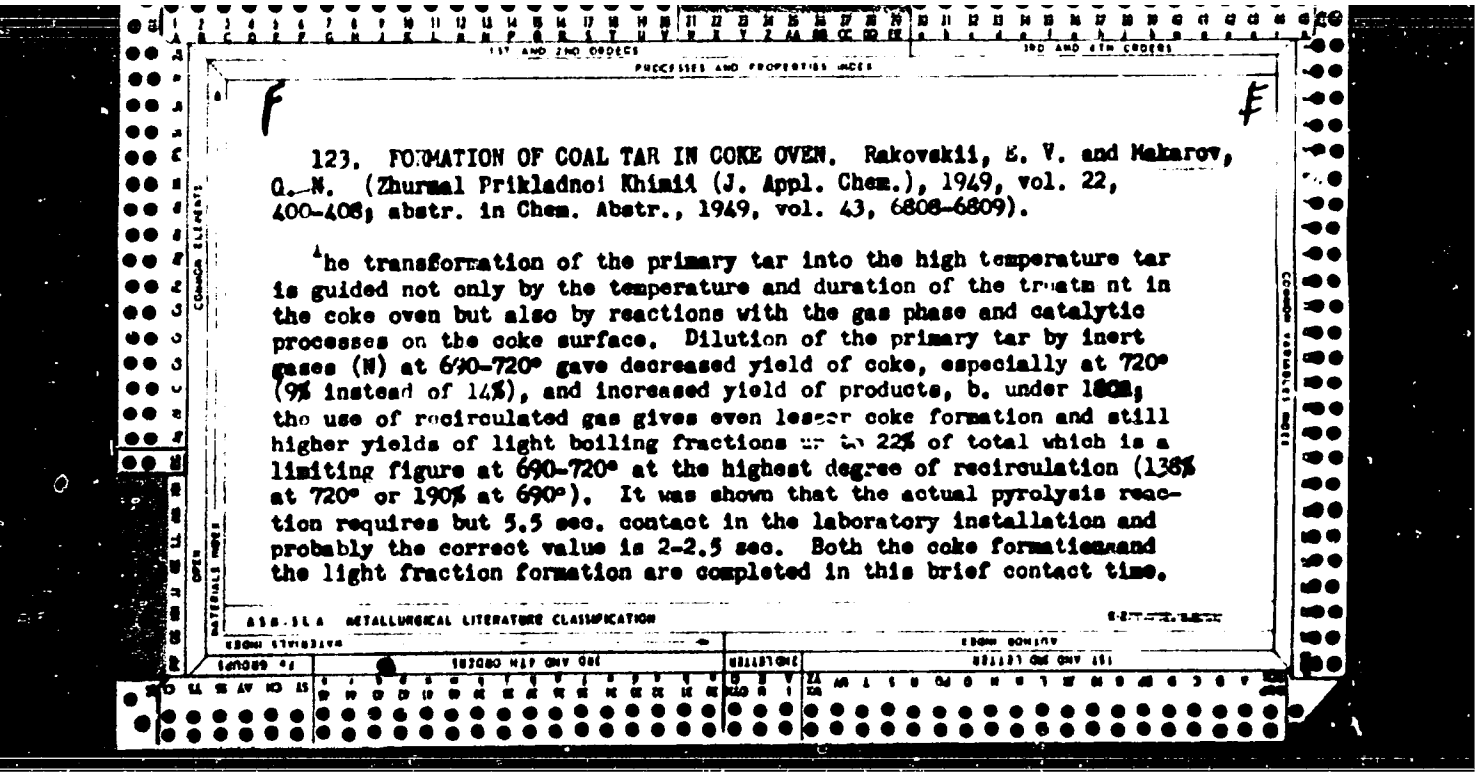
RAKOVSKIY, Ye and V. and Makarov, G.N, "On the use of coal tar in the coking of coal" (Summary of the paper), Soobshch. o nauch. rabotakh chlenov vsesoyuz khim. o-va im. Mendleyeva, 1948, Issue 3, p 7-9

SO: U-3261, 10 April 53. (Letopis 'Zhurnal 'Nykh Statey No. 11 1949).



The problem of formation of coal tar in the coking of coal. B. V. Kalovskii and G. N. Makarov. *Doklady Akad. Nauk S.S.S.R.* 61, 321-3(1948).—Pyrolysis, at 700-800°, of the primary tar, formed from coal at 500-550°, yields not over 6-10% of liquid products b. below 180°, whereas the same fraction, obtained in regular coking at 700-800°, attains 15-17% with respect to the low-temp. tar. That this difference is detd., to a large extent, by the fact that, in the coking process, the primary (low-temp.) tar is pyrolyzed in the presence of gases, resulting in (1) changes of the time of stay of volatile products in the high-temp. zone, (2) changes of concns., and in (3) chem. reactions with the constituents of the primary tar, was demonstrated by expts. of pyrolysis of a primary tar at 680-720°, in a stream of N_2 (to test the effects 1 and 2) and in a stream of a hydrocarbon gas (as a test for effect 3). With increasing amt. of N_2, the yield of gas increases somewhat and the yield of coke decreases slightly, but the amt. and the fractional compn. of the liquid pyrolyzate remains practically unchanged; however, the content of unsatd. compds. in both gas and liquid increases with increasing dilu. with N_2; this fact indicates inhibition of the subsequent stages of polymerization of unsatd. compds. Hydrocarbon gas has a much stronger effect. Thus, increase of the amt. of hydrocarbon gas from 29 to 170 wt. % of the original primary tar increases the yield of pyrolyzate by 36% and that of gasoline by 63%, and decreases the yield of coke by 57%. With equal amts. of N_2 and of hydrocarbon gas, under otherwise identical conditions, the yield of pyrolyzate is by 23% and that of gasoline by 32% higher in the latter case. The yields of gas and of coke are lower in the former case, by 10 and by 20%, resp. It clearly demonstrates that chem. reactions between the primary tar and the hydrocarbon gas play a decisive role in the formation of the secondary tar.

N. Thon



123. FORMATION OF COAL TAR IN COKE OVEN. Rakovskii, E. V. and Makarov, G. N. (Zhurnal Prikladnoi Khimii (J. Appl. Chem.), 1949, vol. 22, 400-408; abstr. in Chem. Abstr., 1949, vol. 43, 6808-6809).

The transformation of the primary tar into the high temperature tar is guided not only by the temperature and duration of the treatment in the coke oven but also by reactions with the gas phase and catalytic processes on the coke surface. Dilution of the primary tar by inert gases (N) at 690-720° gave decreased yield of coke, especially at 720° (9% instead of 14%), and increased yield of products, b. under 180°; the use of recirculated gas gives even lesser coke formation and still higher yields of light boiling fractions up to 22% of total which is a limiting figure at 690-720° at the highest degree of recirculation (136% at 720° or 190% at 690°). It was shown that the actual pyrolysis reaction requires but 5.5 sec. contact in the laboratory installation and probably the correct value is 2-2.5 sec. Both the coke formation and the light fraction formation are completed in this brief contact time.

MAKAROV, G.N., kandidat tekhnicheskikh nauk; ZHITOV, B.N., inzhener; SHASHKOVA, T.D., inzhener; SHTEYN, I.Ya., inzhener; GILYAZETDINOV, L.P., inzhener.

Preliminary heat treatment of coals for coking. Koks i khim. no.4:12-17 '57. (MLRA 10:5)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.
(Coal--Carbonization)

POLYANICHKO, Ya.I.; IL'INA, I.V.; MAKAROV, G.N.; ROMANOV, A.A.

Scientific anniversary session of the Karelian Branch of the Academy of Sciences of the U.S.S.R. Izv. Kar. i Kol'. fil. AN SSSR no.2:177-181 '58. (MIRA 11:9)

(Karelia--Research)

AUTHORS: Bogoslovskiy, Yu. N., Makarov, S. N., 307/156-58-4-11/12
Uzunov, T.

TITLE: The Investigation of the Coke Formation Process by the Method of Direct Electric Heating of the Coal Charge (Issledovaniye protsessa koksovaniya metodom pryamogo elektronagreva shikhty zagruzki)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 499 - 502 (USSR)

ABSTRACT: A coke formation process was investigated by direct electric heating using a special device. The coke formation was investigated in regard to various factors bearing on the properties and the quantity of the yield of solid, liquid and gaseous products. The measurements of the electric conductivity showed that coke of a granular size of 0,25 mm has the least electric conductivity. Also, coal dust reduces the electric conductivity. The maximum electric conductivity was found in coke of a granular size of 0 - 2 mm. The influence of the rate of heating on the gas emission in coke formation was investigated. With a velocity of 3-8°/min. the amount of gas emitted is reduced. It

Card 1/2

The Investigation of the Coke Formation Process by SOV/156-[illegible]
the Method of Direct Electric Heating of the Coal Charge

was found that adding to the coal samples in coke formation do not influence the quality of the coke. There are 3 figures, 3 tables, and 2 references, which are Soviet.

ASSOCIATION: Kafedra pirogennykh protsessov Moskovskogo khimiko-tekhnologicheskogo instituta imeni D.I.Mendeleyeva (Chair of Pyrogenic Processes at the Moscow Chemical Technical Institute imeni D.I.Mendeleyev

SUBMITTED: October 29, 1957

Card 2/2

Ko-58-4-6/21

AUTHORS: Makarov, G. N. and Korolev, Yu. G., Candidates of Technical Sciences

TITLE: Coking of a Freely Lying Thin Layer of a Coal Charge (Koksovaniye svobodno lezhashchego tonkogo sloya ugol'noy zagruzki)

PERIODICAL: Koks i Khimiya, 1958, Nr 4, pp 18-23 (USSR)

ABSTRACT: A new continuous coking method is proposed. This is based on coking a thin layer (100-200 mm) of a coal charge on a moving bottom. Laboratory experiments were carried out in which a 3-4 kg coal charge was preheated in a drum furnace to a preplastic temperature and then charged into a pan in a special rectangular furnace (Fig.1) which was divided into two sections. In the first section the charge was heated to 550°C and then pushed into the second section where it was heated to a final coking temperature. The charge could be heated either from the top or from the bottom or from both sides simultaneously. The discharged coke was cooled in an inert atmosphere in a water cooled cupboard. The physico-chemical properties of coke were evaluated according to Refs. 2, 3 and 4, the remaining analysis according to GOST. Donets G and OS and

Card 1/4

Coking of a Freely Lying Thin Layer of a Coal Charge 68-58-4-6/21

Kuznetsk Z[illegible] two industrial blends with [illegible] (Table 1). The following operating factors were [illegible]
1) The influence of the method of heat supply on the coke quality. Top, bottom and two-side heating under similar conditions compared. Table 1; the duration and [illegible] of coking under the above three types of heating conditions - Table 2; the influence of heating conditions on some properties of the coke produced - Table 3. In all cases top heating produced coke of better strength and size distribution than the other two types of [illegible]
2) The influence of coking temperature. The coking temperature in the first section was varied from 700°C to 1000°C (top heating) and in the second section (side heating) from 1000°C to [illegible]. It was found that the influence of heating rate on the coke quality with this method of coking is approximately the same as under the usual coking conditions.
3) The influence of coal charge density on the [illegible] was found to be similar but less pronounced than under usual coking conditions (Table 4).
Card 2/4 4) The influence of a preliminary thermal [illegible] of

Coking of a Freely Lying Thin Layer of a Coal Charge 68-58-4-6/21

coal on the coke quality was tested on parallel coking experiments with untreated coal and coal heated to a temperature 20-30°C lower than its softening temperature. The properties of treated coals - Table 7, experimental results - Table 8. In all cases with the exception of coal G (gas) the pretreatment of coal improved the quality of coke. In addition it was established that the condensing liquid coking products (tar, benzol) are evolved nearly completely in the first section of the furnace. A comparison of coking by-products obtained on bottom and top heating of the charge indicates that an increase in the roof temperature from 550°C to 900°C (from bottom to top heating) the yield of gas increases and the yield of tar decreases. The tar and raw benzol recovered on coking with top heating are very similar to products and ll produced in coke ovens. It is concluded that using the above method of coking the problem of metallurgical [illegible] is possible not only from the usual blends but also from unblended gas coals.
There are 4 tables, 5 figures and 5 references, all of which are Soviet.

Card 3/4

Coking of a Freely Lying Thin Layer of a Coal Charge 68-58-4-6/21

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva
(Moscow Institute of Chemistry and Technology imeni D. I. Mendeleyev)

1. Coal--Heating 2. Coke--Production 3. Industrial equipment --Operation 4. Industrial equipment--Performance

Card 4/4

SOV/68-58-11-7/25

AUTHORS: Wang Chao-hsun and Makarov, G.N.

TITLE: Investigation of the Thermograms of Low Rank Coals (Issledovaniye termogramm molodykh kamennykh ugley)

PERIODICAL: Koks i Khimiya, 1958, Nr 11, pp 18-23 (USSR)

ABSTRACT: Differential thermal analysis of five low rank coals (Table 1) is described. It is pointed out that at the present stage of development the method cannot provide answers regarding technological properties of coals and therefore should be applied in conjunction with the other physico-chemical investigating methods.
There are 4 tables, 3 figures and 7 references (3 Soviet and 4 English)

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva) Moscow Institute of Chemical Technology imeni D.I. Mendeleyev

Card 1/1

ZHITOV, B.N.; IVANOV, Ye.N.; MAKAROV, G.N.; CHECHETKIN, A.V.

Investigation of the process of the preliminary thermal preparation of coals by means of a gaseous heat carrier. Trudy MKH"I no.28: 17-27 '59. (MIRA 13:11)

(Coal preparation)

DVORIN, S.S.; ZHITOV, B.N.; LERNER, R.Z.; MAKAROV, G.N.; SAZONOV, S.A.; SYSKOV, K.I.

Coking of preheated coals as a method of intensifying the production of coke and improving its quality. Trudy MKHTI no.28:28-37 '59. (MIRA 13:11)

(Coal--Carbonization)

BOGOSLOVSKIY, Yu.N.; MAKAROV, G.N.; MUZYCHENKO, L.A.; OMEL'CHENKO, B.N.

Substitution of breeze for PS coals in charges of the Cherepovets Plant. Trudy MKHTI no.28:58-63 '59. (MIRA 13:11)

(Cherepovets--Coke)

BOGOSLOVSKIY, Yu.N.; MAKAROV, G.N.; BRONSHTEYN, A.P.; MUZYCHENKO, L.A.; OMEL'CHENKO, B.N.

Effect of added coke on the process of carbonization of gas coal and on the quality of the coke produced. Trudy MKHTI no.28: 64-72 '59. (MIRA 13:11)

(Coal--Carbonization)

MAKAROV, G.N.; KOROLEV, Yu.G.; VORONIN, M.A.; BOGOSLOVSKIY, Yu.N.; FOFONOVA, M.Ya.

Effect of various factors on the yield of volatile products from the carbonization of a thin loosely-embedded layer of the coal charge MKGZ. Trudy MKHTI no.28:73-78 '59. (MIRA 13:11)
(Coal--Carbonization)

KOZLOVTSEVA, Z.I.; MAKAROV, G.N.

Effect of the conditions of coking on the microstructure, electric conductivity, and reactivity of coke. Trudy MKHTI no.28:89-95 '59. (MIRA 13:11)

(Coke--Carbonization) (Coke)

VAN CHZHAO-SYUN [Wang Chang-hsiung]; MAKAROV, G.N., kand.tekhn.nauk

Investigating the process of evolution of volatile products in coking. Koks i khim. no.4:15-19 '60. (MIRA 13:6)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I. Mendeleyeva.
(Coal--Carbonization)

MAKAROV, G.N., kand.tekhn.nauk ; VAN CHZHAO-SYUN [Wang Chao-hsiung]

Coking of gas and long-flame coals. Koks i khim. no.6:3-6 '60.
(MIRA 13:7)

1. Moskovskiy khimiko-tekhnologicheskiy institut im. K.I. Mendeleyeva.
(Coal--Carbonization)

ZHITOV, B.N.; MAKAROV, G.N.

Investigation of effect of preheating on the coal charge.
Koks i khim. no.16:3-6 '61. (MIRA 15:2)

1. Moskovskiy Ordena Lenina khimiko-tekhnologicheskiy institut im. D.I.Mendeleyeva.
(Coke)

MAKAROV, G.N.; KAZINIK, Ye.M.; POPCHENKO, R.A.; SEMENOV, A.S.; YERKIN, L.I.; RYVKIN, I.Yu.; PRIVALOV, V.Ye.; MUSTAFIN, F.A.; KUZNETSOV, P.V.; ZOROKHOVICH, G.Ya.

Coking of the coal charge in an oven with a rotating ring floor. Koks i khim. no.11:34-41 '62. (MIRA 15:12)

1. Moskovskiy khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva (for Makarov, Kazinik, Popchenko, Semenov). 2. Vostochnyy uglekhimicheskiy institut (for Yerkin, Ryvkin, Privalov). 3. Nizhne-Tagil'skiy metallurgicheskiy kombinat (Mustafin, Kuznetsov, Zorokhovich).
(Coke)

KOGAN, L.A.; BOGOYAVLENSKIY, V.V.; MAKAROV, G.N.; SEMENOV, A.S.; KUZNETSOV, P.V.; MUSTAFIN, F.A.

Obtaining pitch coal coke for electrode manufacture. Koks i khim. no.3: 22-25 '63. (MIRA 16:3)

1. Vostochnyy uglekhimicheskiy institut (for Kogan, Bogoyavlenskiy), 2. Moskovskiy Ordena Lenina khimiko-tekhnologicheskiy institut im. D.I.Mendeleyeva (for Makarov, Semenov). 3. Nizhne-Tagil'skiy metallurgicheskiy kombinat (for Kuznetsov, Mustafin).
(Coke)

BOGOSLOVSKIY, Yu.N.; KUDRYASHOV, V.I.; LUZYANIN, B.P.; MAKAROV, G.N.; MUZYCHENKO, L.A.

Method of automatic determination of ammonia in a current of gas. Zav.lab. 29 no.2:158-159 '63. (MIRA 16:4)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva. (Ammonia) (Coke-oven gas)

BOGOSLOVSKIY, Yu.N.; KUDRYASHOV, V.I.; MAKAROV, G.N.

Automatic method of determination of the interval of the plastic state of coal. Zav.lab. 29 no.2:198-199 '63. (MIRA 16:5)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva.

(Coal—Permeability)

BOGOSLOVSKIY, Yu.N.; KAZINIK, Ye.M.; MAKAROV, G.N.

Temperature distribution in a ring-shaped oven for the continuous coking of coal. Koks i khim. no.9:30-35 '62. (MIRA 16:10)

1. Moskovskiy khimiko-tekhnologicheskiy institut im. I.I.Mendeleyeva.
(Coke ovens--Testing)

BRONSHTEYN, A.P.; MAKAROV, G.N.; GORBATYY, Yu.Ye.; EPEL'BAUM, M.B.

Shrinkage and formation of phase stresses in coke. Koks i khim. no.8:22-27 '63. (MIRA 16:9)

1. Chelyabinskiy metallurgicheskiy zavod (for Bronshteyn). 2. Moskovskiy ordena Lenina khimiko-tekhnologicheskiy institut im. D.I.Mendeleyeva (for Makarov). 3. Ural'skiy filial Akademii stroitel'stva i arkhitektury (for Gorbatyy, Epel'baum).
(Coke)

ZHITOV, B.N.; MAKAROV, G.N., DVORIN, S.S.

Coking of preheated coal and coal charges. Koks i khim. no.2: 16-23 '64. (MIRA 17:4)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva (for Zhitov, Makarov). 2. Gosplan SSSR (for Dvorin).

BOGOSLOVSKIY, Yu.N.; ZHVAKINA, L.P.; KUDRYASHOV, V.I.; MAKAROV, G.N.

Simultaneous measurement of the thermal effects and the viscosity of coal during heating. Zav. lab. 31 no.11:1362-1363 '65.
(MIRA 19:1)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni Mendeleyeva.

DEMIN, M.N.; MAKAROV, G.P.

Mechanization of warehouse operations in the "Oktiabr'" factory.
Kons.i ov.prom. 17 no.9:13-14 S '62. (MIRA 15:8)

1. Proyektno-konstruktorskiy tekhnologicheskiy institut sovnarkhoza Moldavskoy SSR.
(Industrial power trucks)
(Canning industry--Equipment and supplies)

MAKAROV, G.P.; DAYEN, P.A.; DOMKOVICH, V.V.

Mechanization of the conveying of tomato paste from the production shops to the warehouse of finished products. Kons. i ov. prom. no.7:7-9 Jl '63. (MIRA 16:9)

1. Proyektno-konstruktorskiy tekhnologicheskiy institut soveta narodnogo khozyaystva Moldavskoy SSR.

PERLI, G.I., inzh.; SKIBITSKIY, M.S., inzh.; MAKAROV, G.S., inzh.

Experience in the operation of regenerative air preheaters.
Energomashinostroenie 7 no.3:35-37 Mr '61. (MIRA 16:8)

(Boilers--Firing) (Air preheaters)

TOLSTOPYATOV, N.I.; MAKAROV, G.T., inzhener distantsii

Direct-current converter for automatic block systems. Avtom., telem. i sviaz' 2 no.11:22 N '58. (MIRA 11:12)

1.Nachal'nik Rubinskoy distantsii signalizatsii i svyazi Kazakhskoy dorogi.

(Electric current converters)

TRUBNIKOV, Mikhail Mikhaylovich; MAKAROV, G.Ye., redaktor; AGRANOVSKAYA, E.D., redaktor izdatel'stva; SHITS, V.P., tekhnicheskiy redaktor

[Establishment of technical norms in forestry] Tekhnicheskoe normirovanie v lesnom khoziaistve. Moskva, Goslesbumizdat, 1956. 135 p. (MLRA 10:4)
(Forests and forestry--Production standards)

VORONIN, Ivan Vasil'yevich, dotsent; VASIL'YEV, Prokofiy Vasil'yevich, prof.; ALTSYSHKIN, Sergey Petrovich, inzh.; ISHIN, Dmitriy Petrovich, inzh.; KOSTYUKOVICH, Fedor Trofimovich, dotsent; MAKAROV, Grigoriy Yefimovich, inzh.; RADETSKIY, Vitaliy Il'ich, kand.sel'skokhoz.nauk; SABO, Yevgeniy Dyul'yevich, kand.tekhn. nauk; SUDACHKOV, Yevgeniy Yakovlevich, doktor sel'skokhoz.nauk; FEDOROVYKH, Mikhail Leonidovich, assistent; YANYSHKO, Anatoliy Davydovich, assistent; FUKS, Ye.A., red.izd-va; KUZNETSOVA, A.I., tekhn.red.

[Organizing and planning work at forestry enterprises] Organizatsiia i planirovanie proizvodstva na predpriiatiiakh lesnogo khoziaistva. Moskva, Goslesbumizdat, 1960. 328 p. (MIRA 14:2)

(Forest management)

MAKAROV, Grigoriy Yefimovich; ARESHCHENKO, Vladimir Denisovich; BARKAN, V.A., red.; YERMILOV, V.M., tekhn. red.

[Organization of work in forest enterprises] Organizatsiia truda na predpriiatiiakh lesnogo khoziaistva. Minsk, Gos.izd-vo sel'-khoz.lit-ry BSSR, 1961. 105 p. (MIRA 15:1)
(Lumbering) (Forest)

MAKAROV, I.

Powerful source of creative activity. NTO 5 no.4:21-23 Ap '63.
(MIRA 16:3)

1. Predsedatel' Belorusskogo respublikanskogo soveta professional'nykh soyuzov.
(White Russia--Technological innovations)

MAKAROV, I.

An advanced plant should have an outstanding technical control.
Standartizatsiia [illegible] 0 '65.

(MIA 18:1)

MAKAROV, I.A., inzhener.

Rapid method of producing experimental machine samples. Vest.mash. 33 no. 3:55 Mr '53. (MLRA 6:5)
(Machinery industry)

PHASE I BOOK EXPLOITATION SOV/4237

Makarov, Il'ya Alekseyevich

Uskorennaya tekhnicheskaya podgotovka proizvodstva; iz opyta raboty mashinostroitel'nykh zavodov (Accelerated Engineering Preparation for Production; From the Experience of Machinery-Manufacturing Plants) Moscow, Mashgiz, 1960. 71 p. Errata slip inserted. 5,000 copies printed.

Reviewer: D. A. Biryukov, Engineer; Ed.: L. M. Ol'shevets, Candidate of Technical Sciences, Docent; Tech. Ed.: G. Ye. Sorokina; Managing Ed. for Literature on the Economics and Organization of Production (Mashgiz): T. D. Saksaganskiy, Engineer.

PURPOSE: This booklet is intended for technical personnel in machinery-manufacturing establishments, scientific research institutes, and specialized design offices.

COVERAGE: The book describes accelerated methods for preparatory operations in the production of new machines and analyzes the shortcomings of methods presently used. The principal advantages and economic effectiveness of preparatory operations are indicated. No personalities are mentioned. There are 18 references, all Soviet.

Card 1/3

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

Card 3/3

AC/pw/fal
10-4-60

MAKAROV, I., delegat XIII s"yezda professional'nykh soyuzov (Minsk)

Develop the technical creativeness of the masses. Sov. profsoiuzy 19 no.19:4-7 O '63. (MIRA 16:11)

1. Predsedatel' Belorusskogo respublikanskogo soveta professional'nykh soyuzov.

AUTHORS: Makarov, I. A. and Nizyayev, V. M. 65-1-3/14

TITLE: Investigations on Combining the Synthesis of Methanol with Destructive Hydrogenation Processes. (Opyt sovmeshcheniya sinteza metanola s protsessami destruktivnoy gidrogenizatsii).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel,1959,Nr.1.pp.9-17). (USSR)

ABSTRACT: Data on 2 years experimental plant work are given in which the synthesis of methanol was combined with destructive hydrogenation. These experiments were based on the idea of replacing the purification of hydrogen from CO with an ammoniacal solution of a copper salt by the synthesis of methanol. The gas (after washing with water) contains 5% CO; this content is decreased to 1 - 2%. After the condensation of methanol, the gas is used for hydrogenation. Initially, the methanol synthesis plant was connected to the vapour phase hydrogenation plant, by-passing copper-ammoniacal purification (Fig.1). In the hydrogenation plant the petroleum raw materials are treated in the form of a kerosene-gas oil fraction, vacuum distillate and a mixture of medium fractions of tar from semi-coking and crude petroleum oil.

Card 1/3

55-1-3/14

Investigations on Combining the Synthesis of Methanol with Destructive Hydrogenation Processes.

Fresh synthesis gas is diluted with the recirculated gas to decrease the CO concentration and to prevent carbonyl corrosion of the heat exchangers. The synthesis plant is described. Mean monthly compositions of the synthesis and circulating gas (Table 1), data on crude methanol (Table 2) and data on the temperature distribution in the catalyst (Table 3) are given. An analysis of the plant operation shows that, with low CO concentrations, the process can be controlled easily. A modified plant is shown in Fig.2 when an additional synthesis column was joined in parallel. Plant operating data are given in Tables 4 - 9. The water gas still contained a high percentage of nitrogen, inspite of a considerable blow-off of the residual gases. In view of this a scheme was developed in which gas from the methanol synthesis passes into an ammoniacal-copper purification plant where it is freed from oxygen containing admixtures and passed into an ammonia synthesis plant, where nitrogen is converted into ammonia. The gas is then led to the hydrogenation plant (Fig.3). This scheme was carried

Card 2/3 out in 2 stages: (1) only the ammoniacal copper puri-

Investigations on Combining the Synthesis of Methanol with Destructive Hydrogenation Processes. 65-1-3/14

fication plant was included (Fig.4). The process: methanol-ammoniacal-copper purification - hydrogenation proved to be economical and could be controlled easily. More than 100,000 tons of methanol were produced without changing the catalyst. Operating data are given (Tables 10 - 12). The introduction of the second stage is not mentioned. The problem of the conversion of CO by destructive hydrogenation is discussed. Table 13 gives thermodynamic calculations for the proposed reaction. There are 13 Tables, 4 Figures and 5 Russian References.

AVAILABLE: Library of Congress.

Card 3/3

AUTHORS: Makarov, I. A. and Nuriyazi, V. M. SOV/65-58-5-1/14

TITLE: Conversion of Units for the Methanol Synthesis and Destructive Hydrogenation Processes to Autothermic Conditions. (Perevod agregatov sinteza metanola, sovmeshchennogo protsessami destruktivnoy gidrogenizatsii, na avtotermicheskiy rezhim).

PERIODICAL: Khimiya i Tekhnologiya Topliv i Masel, 1958, Nr. 5, pp. 1 - 4 (USSR).

ABSTRACT: The authors calculated and investigated units with continuous heating and showed that it was possible to carry out the process autothermically when using a synthesis gas containing 5 - 8% of carbon monoxide by entering the catalysis zone. The unit comprises one high pressure column with shelf packing, two heat exchangers, a cooler-condenser and a separator. The volume of the catalyst submerged in the column is 6 m³. The fresh synthesis gas is mixed with a circulating gas on entering the heat exchanger, and after heating enters the catalyst zone. The reaction product and the circulating gas pass through the heat exchanger, the cooler-condenser and enter the separator. Methanol is led from the separator to a receiver; part of the circulating gas is recycled,

Card 1/3

Conversion of Units for the Methanol Synthesis and Destructive Hydrogenation Processes to Autothermic Conditions

the second part is purified by liquor-ammonia, and led to the hydrogenation apparatus. Average monthly data on the temperature regime in the catalysis zone - Table 1. Gas currents characterizing the consumption of fresh synthesis gas and the quantity of circulating gas - Table 2. Average monthly data on the composition of the synthesis and circulating gases - Table 3. Average data on gas currents during the preliminary heating of the unit - Table 4. The maximum supply of synthesis gas during the experiment - 30,000 cu.m/hr. Average data on the composition of the gases during the first part of the experiment - Table 5. Fig.2 shows the readings of the apparatus characterizing the temperature regime and circulation during the cutting-off of the supply of fresh synthesis gas. Fresh gas is supplied for forty minutes and on supply of the synthesis gas the temperature increased sharply. Table 6 gives data on the composition of gases when the unit is working on a maximum content of carbon monoxide in the circulating gas. This experiment was carried out continuously during four days when the minimum content of carbon monoxide in the circulating gas was 1.1%

Card 2/3

SOV/65-58-5-1/14

Conversion of Units for the Methanol Synthesis and Destructive Hydrogenation Processes to Autothermic Conditions.

It was found that the unit functioned autothermically under these conditions. The output of the unit increases when the content of carbon monoxide in the circulating gas is increased to 5 - 6%. Units with continuous heating arrangements are more easily handled, and more constant when the composition and the quantity of gas varies, and also under industrial conditions. The process is of great importance for the preparation of synthesis gas from natural and other hydrocarbon gases. There are 2 Figures, 6 Tables and 5 Soviet references.

Card 3/3

21(1),11(2)

AUTHORS: Lavrov, N. V., Doctor of Technical Sciences, Makarov, I. A., Candidate of Technical Sciences, Miroshnichenko, V. S., Engineer, Perepelitsa, A. L., Candidate of Technical Sciences, Pinsker, A. Ye., Engineer, Chernenkov, I. I., Engineer SOV/67-59-2-1/18

TITLE: Use of Air Enriched With Oxygen in Partial Carbonization of Coal (Primeneniye obogashchennogo kislorodom vozdukha pri polukoksovanii uglya)

PERIODICAL: Kislorod, 1959, Nr 2, pp 1-9 (USSR)

ABSTRACT: An air-blowing engine has hitherto been applied in multizone shaft furnaces, of which general use is made in partial carbonization of coal. In addition to semicoke, semicoke gas was produced which contained a large quantity of nitrogen. Thus this gas is very unfavorable for further use for heating and technical purposes. Consequently, the authors made an experiment with industrial furnaces in which they tried to use air enriched with oxygen. As a result, the semicoke gas was considerably improved and the coking process was intensified. A diagram of a multizone furnace for partial carbonization of coal is shown in figure 1, and its mechanism is

Card 1/3

described. For the purpose of investigating the dependence of the gas yield on temperature during the coking process the authors made laboratory experiments with Cheremkhovo coal. Data on the composition and yield of the gas are listed in table 1. The investigations were conducted by Engineer L. F. Ovsyannikov, with the assistance of Engineer V. F. Shiktorov, Engineer A. I. Gorokhova, and Engineer K. A. Bogens. In addition, the influence exercised by various oxygen contents on the composition and calorific value of the gas obtained was investigated. The following data were obtained: In addition to semicoke and tar, gas with a calorific value of 2,200 kcal/nm^3 is obtained during the partial carbonization of coal in multizone shaft furnaces, using an air-oxygen blowing engine with an oxygen content of up to 30 and 35 %. A gas is produced by oxygen enrichment of 40 % which after further treatment can be used for synthesizing ammonia. With an enrichment of 50 % and more a gas results which has a calorific value of 4,000 kcal/nm^3. Prime cost per calorie of the gas obtained does not differ greatly from that of

natural gas (for conditions prevailing in East Siberia) (Table 4). The oxygen consumption does not exceed 40-50 % with respect to the amount required by direct gasification of coal by means of oxygen (producer gas) (Table 3). Table 2 and figures 3-7 (Diagrams) contain the technical characteristics of oxygen- and air consumption, composition and calorific value of the gas, furnace output, etc with various additions of oxygen. There are 7 figures, 4 tables, and 14 Soviet references.

BLINOV, G.I.; MAKAROV, I.A.; PINKHUSOVICH, R.L.

Using radioactive control and regulation devices in hydrogenation plants. Khim. i tekh.topl. i masel 4 no.1:15-19 Ja '59.
(MIRA 12:1)

(Radioisotopes--Industrial applications)
(Liquid level indicators)

BOGDANOV, I.F.; LAVROV, N.V.; MAKAROV, I.A.; PINSKER, A.Ye.; CHERNENKOV, I.I.

Possibility of obtaining synthesis gas in semicoke-producing ovens using an air blast enriched with oxygen. Gaz. prom. 4 no.11:18-22 '59. (MIRA 13:2)
(Gas manufacture and works)

MAKAROV, I.A.

Hydrogenation of petroleum distillates on fixed bed catalysts. Trudy Vost.-Sib.fil.AN SSSR no.26:86-91 '59.
(MIRA 13:6)
(Petroleum products) (Hydrogenation)

MAKAROV, I.A.

Liquid phase hydrogenation of petroleum residues in the presence of a suspended catalyst. Trudy Vost.-Sib.fil.AN SSSR no.26-92-97 '59. (MIRA 13:6)
(Petroleum--Refining) (Hydrogenation)

S/[illegible]/60/000/06/001/004
B0[illegible]/B112

5.3400

AUTHOR: Makarov, I.A.

TITLE: Synthesis of Methanol over a Zinc-Chromate Catalyst with Reduced Concentrations of Carbon Monoxide in the Circulating Gas

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No 6. pp 17-24 (USSR)

ABSTRACT: Paper presented on November 17 1959 at the All Union Conference on Organic Catalysis, Moscow.
An improved system of methanol synthesis, consisting of destructive hydrogenation together with maintenance of carbon monoxide at 300 atmospheres at the 2-6% level in the circulating gas, has undergone five years of full-scale tests. The reduced carbon monoxide concentration enables the zinc-chromate catalyst to retain satisfactory activity for 2 or more years, compared with 4-6 months of life at 16-18% carbon monoxide concentration. It also gives a much purer methanol, by tending to suppress side and secondary reactions, so that the aldehyde plus ketone content is reduced to about 0.03%, and sulphur retained only in trace quantities: this ensures obtaining exceptionally high quality

Card 1/2

S/[illegible]/000/06/001/004
E030/E112

Synthesis of Methanol over a Zinc-Chromate Catalyst with Reduced Concentrations of Carbon Monoxide in the Circulating [illegible]

rectified methanol with least waste product. The water content the methanol decreases with decreasing concentration of carbon dicxide in the synthesis gas. Decreasing the carbon monoxide content increases its utilization; this, together with increased velocities, increases the process efficiency and makes the temperature regime in the catalyst zone so stable that process supervision is facilitated. To avoid sudden temperature rises and oxidation of the catalyst in the column during shut-down of the plant for repair without removing the catalyst, contact of the catalyst with air must be completely eliminated. If contact with air has occurred, the start-up must be in a hydrogen atmosphere up to 500-550 °C, until most of the air has been expelled
There are 4 figures, 7 tables and 3 Soviet references.

Card 2/2

MAKAROV, I.A.

International Symposium on the problems of distillation. Khim.i tekh.topl.i masel 6 no.1:72-of cover; Ja '61. (MIRA 14:1)
(Distillation—Congresses)

DANTSIG, G.N.; MAKAROV, I.A.; ORECHKIN, D.B.

Removal of hydrogen sulfide from petroleum products by means of ethanolamine solutions. Khim.i tekh.topl.i masel 7 no.7: 12-15 Jl '62. (MIRA 15:9)
(Petroleum products) (Hydrogen sulfide)

MAKAROV, I.A.

Thirty-fourth International Congress of Industrial Chemistry.
Khim.prom. [Ukr.] no.1:90 Ja-Mr '64. (MIRA 17:3)

MAKAROV, I.A., kand.tekhn.nauk

Expansion of the production and consumption of fertilisers in capitalist countries. Khim.prom. [Ukr.] no.1:83-85 Ja-Mr '64. (MIRA 17:3)

MAKAROV, I.A., kand. tekhn. nauk

Economic advantages of combining the synthesis of methanol with the manufacture of hydrogen. Khim. prom. [Ukr.] no.3:66-68 Jl-S '64. (MIRA 17:12)

VESELOV, V.V., kand. tekhn. nauk; MAKAROV, I.A., kand. tekhn. nauk

Ways to reduce the production costs of hydrogen. [illegible]
no.4:64-66 O-D '64.

STEZHENSKIY, A.I. [Stezhens'kyi, A.I.]; [illegible]; PRAZHENNIK, Yu.G. [Prazhennyk, Yu.H.]

Nomograms for determining the parameters of [illegible] conversion of methane with hydrogen under pressure. Khim.prom. [Ukr.] no.2:18-20 Ap-Je '65. (MIRA 18:8)

MAKAROV, I.A. [Makarov, I.O.]; BORISENKO, Yu.A. [Borysenko, IU.A.]

New finds of volcanic ash in the Donets Basin. Geol. zhur. 23 no.4:51-61 '63 (MIRA 17:?)

1. Trest "Artemgeologiya", Artemovskaya kompleksnaya geologo-razvedochnaya partiya.

MAKAROV, I.D., polkovnik meditsinskoy sluzhby.

Bibliography of military medicine during the Patriotic War (1941-1945) (continued). Voen.-med.zhur. no.10:51-54 O '47. (MLRA 6:11)
(Medicine, Military--Bibliography) (Bibliography--Medicine, Military)

MAKAROV, I. D. PA 53T77

USSR/Medicine - Medicine, Military Nov 1947
Medicine - Bibliography

"Bibliography of Military Medicine in World War II," Col I. D. Makarov (Med), 4 pp

"Voyen-Medits Zhurnal" No 11

Continuation of a list of articles and books published on various aspects of military medicine during World War II. Discusses various facts concerning cranial and encephalic wounds, also spinal injuries.

LC 53T77

MAKAROV, I. D., COL, (MED)

PA 53T71

USSR/Medicine - Medicine, Military Nov 1947
Medicine - History

"The Thirtieth Anniversary of Soviet Military Medicine," Col I. D. Makarov (Med); Col Ya. I. Akodus (Med), 1½ pp

"Voyen-Medits Zhurnal" No 11

Briefly traces history of military medicine and outlines some of contemporary tasks and problems. For 30 years military might of Soviet Union has been increasing. Military medicine forced to keep pace with many new developments.

53T71

LC

TA 50T61

MAKAROV, I.D., Col.

USSR/Medicine - Military Dec 1947
Medicine - Bibliography

"Military Medical Bibliography for the Period 1941 to 1945," Col I. D. Makarov, Med Corps, 6 pp

"Voyenno-Medits Zhur" No 12

Part of series continuing through all issues of "Voyenno-Meditsinskiy Zhurnal" in 1947. This part contains bibliography of articles by various authors on the treatment of injured spines and medulla. Series continued.

LC 50T61

USSR/Cultivated Plants. General Probl .

Abs Jour : Ref Zhur-Biol., No 15, 1956, 68064

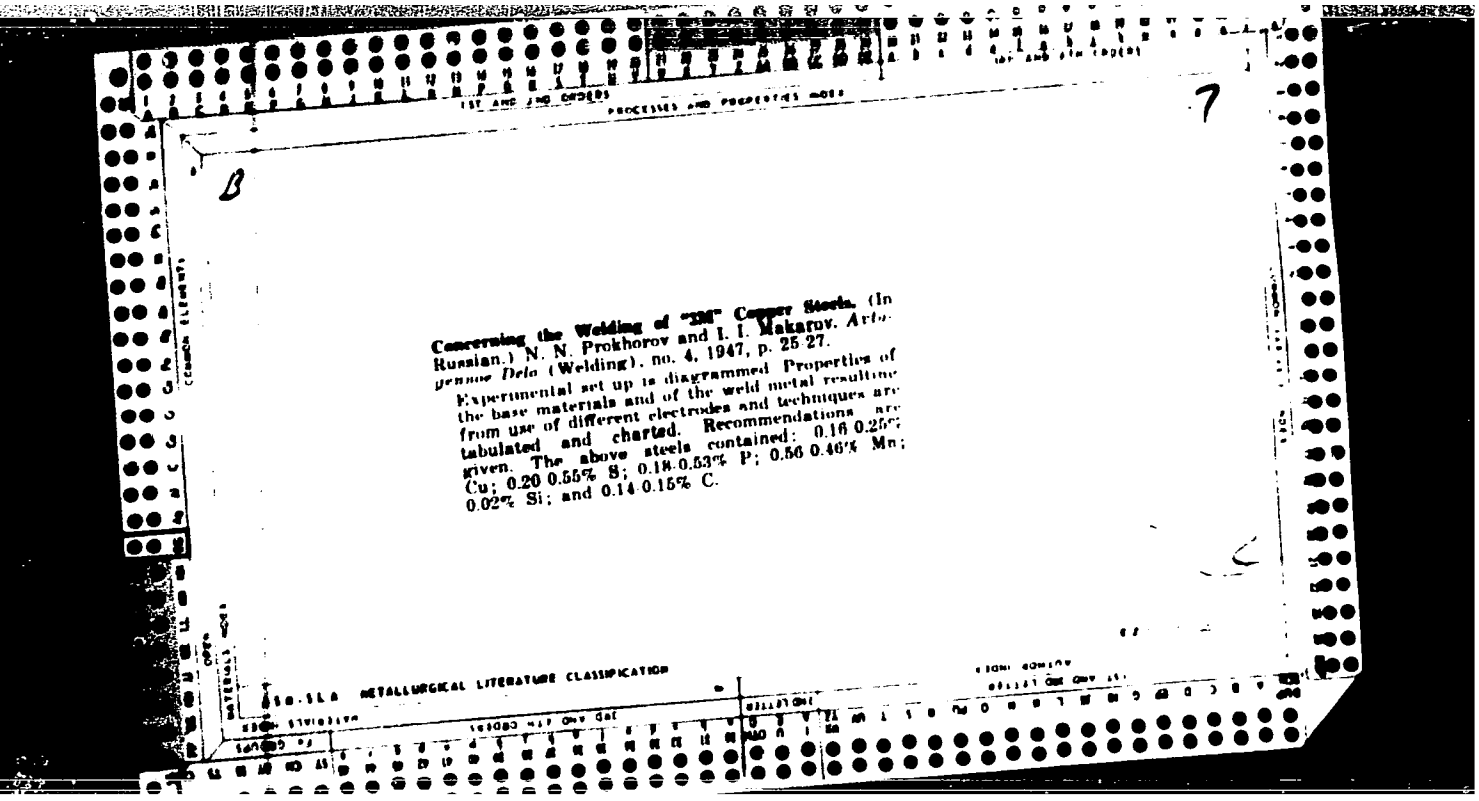
Author : [illegible]
Inst : Leningrad Agricultural Institute.
Title : Northern Agricultural Boundaries of the USSR in the Years of 1913-1917, and 1955

Ori Pub : Zap. Leningr. s.-kh. in-t, 1956, No 16, 85-103

Abstract : No abstract.

Card : 1/1

3



Concerning the Welding of "20K" Copper Steels. (In Russian.) N. N. Prokhorov and I. I. Makarov. *Avtogennoe Delo* (Welding), no. 4, 1947, p. 25-27.

Experimental set up is diagrammed. Properties of the base materials and of the weld metal resulting from use of different electrodes and techniques are tabulated and charted. Recommendations are given. The above steels contained: 0.16-0.25% Cu; 0.20-0.55% S; 0.18-0.53% P; 0.56-0.46% Mn; 0.02% Si; and 0.14-0.15% C.

METALLURGICAL LITERATURE CLASSIFICATION

MAKAROV, I. I.

USSR/Engineering - Welding, Methods Oct 51

"Welding of Nonmetallic Materials," I. I. Makarov, Engr

"Avtogen Delo" No 10, pp 25-27

In 1950 MVTU imeni Bauman conducted preliminary expts for welding "viniplast" - product obtained by special treatment of polychlor-vinyl resin. Only manual method by heating base material and welding rod with hot air was investigated for this type of thermopoplastic products. Discusses welding of pipes with application of inner sleeve. Welding by method described is quite possible but

202T45

USSR/Engineering - Welding, Methods (Contd) Oct 51

mech properties of weld material are very low: Tensile strength at room temp is only 40% of that for base material, bending angle -0°.

202T45

BTR

7934. **Welding of Nonmetallic Materials.** In Russian. I. I. Makarov. Avtogennoe Delo, v. 22, Oct. 1951, p. 25-27. Vinyl plastic specimens were welded using a gas torch. The joints were found to have about 80% of the tensile strength of the base material and became very weak and brittle on bending and impact tests. Data are tabulated and illustrated.

Dissertation: "Effect of Some Defects on the Mechanical Properties of Butt-Welded Connections." Cand Tech Sci, Moscow Order of Labor Red Banner Higher Technical School imeni Bauman, 17 May 54. Vechernyaya Moskva, Moscow, 7 May 54.

SO: SUM 284, 26 Nov 1954

MAKAROV, I. I.

Synthesis of methanol on a zinc-chromium catalyst at reduced concentrations of carbon monoxide in the circulating gas. Khim. i tekh. topl. i masel 5 no.6:17-24 Je '60. (MIRA 13:7)
(Methanol) (Catalysts)

S/135/60/000/011/003/016
A006/A001

AUTHOR: Makarov, I.I., Candidate of Technical Sciences

TITLE: Strength of ЭИ-659 (EI659) Steel Butt Welds Under Variable Load

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 11 pp. 8-11

TEXT: The author discusses results of experimental investigations into the vibration strength of some types of EI659 steel welds and compares the sensitivity to stress concentrators of EI659, 30ХГС (30KhGS) and Ст.3 (St.3) steel EI659 steel was butt welded in heat treated state (σ_B = 110 - 120 kg/mm^2, δ = 12 - 14%) with УОНИ-13/85 (UONI-13/85) electrodes and on the automatic machine under АН-348А (AN-348A) flux and with 20ХМА (20KhMA) wire. 30KhGS steel was welded with UONI-13/85 electrodes and St.3 steel with МЭЗ-04 (MEZ-04) electrodes Heat treatment after welding was not performed. The author investigated butt welds with a reinforcement, welds from which the reinforcement was removed and scarf joints, subjected to plain bending on a ИУ-500 (IU-500) machine, designed by NIIVESPROM and on a pulsator with cycle characteristics r = 0 for 3.5 mm thick specimens and with r = 0.37 for 10 mm thick specimens. The tests yielded the following results. The values of effective concentration coefficients obtained

Card 1/3

S/135/60/000/011/003/016
A006/A001

Strength of ЭИ-659 (EI659) Steel Butt Welds Under Variable Load

for EI659 butt welds by symmetrical bending of specimens are. 1.95 with reinforcement of seams; 1.12 with reinforcement of seams and deconcentrators, 2 2 for scarf joints; 2.8 when the lower edge was poorly penetrated; 2.1 for poorly penetrated butt welds of 30KhGS steel; 1.9 for St.3 steel, in tension by a pulsation cycle the values were. 1 4 - 1.5 for EI659 steel butt welds with reinforcement of seams; 3 - 3 7 (r = 0.37) for scarf welds. Vibration strength of butt welds from which the reinforcement was removed was not different from the vibration strength of the base metal (surface after rolling). The presence of a reinforcement in low carbon steel butt welds reduces its endurance limit by 50% without raising the static strength. In butt welds of high-strength EI659 steel endurace strength is reduced by a factor of 2. The degree of reduction of the endurance strength does not depend on the height of the reinforcement. The use of deconcentrators of 0.5 mm depth under symmetrical bending load, raised the vibration strength of reinforced butt welds by 70%. In comparison to butt welds, scarf joints are less efficient since, they are less resistant to bending and particularly to tension due to the different thickness of the butt-welded sheets. The sensitivity to stress concentrators of high-strength EI659 steel

Card 2/3

S/135/60/000/011/003/016
A006/A001

Strength of ЭИ-659 (EI659) Steel Butt Welds Under Variable Load

butt welds is by 1.5 times higher than that of low-carbon steel butt joints. The value of the effective concentration coefficient does not depend on the poor penetration depth. There are 10 figures and 3 Soviet references.

ASSOCIATION: MVTU imeni Bauman

Card 3/3

27808

S/549/61/000/[illegible]01/006/015
D256/D304

1.2310

AUTHOR: Makarov, I.I., Candidate of Technical Sciences, Docent

TITLE: Friction welding of plastics

PERIODICAL: Vysshaye tekhnicheskoye uchilishche. Trudy. Svarka tsvetnykh splavov, redkikh metallov i plastmass, no. 101, 1961, 124 - 131

TEXT: In welding thermoplastic materials, the welding temperature is higher than that at which decomposition commences. The available welding methods are briefly described: a) Hot air can give a variety of joints from sheets, tubes, and shapes. The heat source is a jet of air heated to 300°C which reaches the heat source at about 200°, and a filler material is added from a rod. Joint strength would be 0.3-0.6 of the parent material strength. b) A heating element is widely used for making gaskets and linings from soft PVC and butt and longitudinal welds in hard PVC. c) Electro-impulse welding is a variety of heating-element welding and is

Card 1/5

27808
S/549/61/000/101/006/015
D256/D304

Friction welding of plastics

used for joining very thin films. Heat is generated in a metal strip several mm wide firmly pressed against the film being welded. The overheating associated with the use of a hot air blast can be avoided. d) H.F. current welding can only be used on plastics containing a polar group. These include p.v.c., polyamide, polymethlacrelates, but not polyethylene, polyisobutylene, polystyrene. The method relies on the ability of the materials mentioned to become heated in the high-frequency field of a condenser, whose shape corresponds to that of the required weld. Particularly weldable are soft p.v.c. and hard p.v.c. films. Sheets 2.5-4.0 mm thick can be welded, and tubes butt-welded. Friction welding is a simple method, not requiring great expenditure, and is most readily applied to objects of rotational symmetry (rods, tubes). The present work relates to the friction butt-welding and joint mechanical properties of p.v.c. tubing 33 mm in diameter and wall thickness 3 mm. A TB-16 (TV-16) lathe is used together with a device (Fig. 2) mainly employed to guarantee coaxiality of the tubes during welding. A tube 1, held in the lathe chuck 2 over a steel plug 3, is

Card 2/5

Friction welding of plastics

rotated, while the other is held rigidly in the device 4 but can be moved in the direction of its axis. The device is fastened to the transverse slides of the carriage 5 in place of the tool holder. The welding pressure is applied manually through the tailstock 6, through the fixed blank after complete stoppage of rotation. At 400 rpm continuous contact for 15-25 sec. is required between the fixed and rotating tubes to heat the joint to the welding temperature at very low pressure (0.5-0.8 kg). The ends are turned before welding and it is vital that they be sized, since the tubes supplied by industry have considerable ovality and non-uniformity. Sizing of the ends is accomplished by heating to the 100-120° condition in the device. The joints are tested in tension and compression, and by internal pressure. In tension the u.t.s. of all-parent-metal-tubes is 530-690 k/cm^2 - mean 600 k/cm^2. These are slightly reduced in section between the grips to prevent fracture within the grips at 390-450 k/cm^2. Butt welds fracture at 240-314 k/cm^2, mean (of 5) 270 k/cm^2, or 45-50 % of parent material u.t.s. Fracture is always through the weld. It is felt that with more precise regulation of welding conditions, a stronger joint can be ob-

Card 3/5

Friction welding of plastics

tained. Under static internal pressure welded tubes withstand 60-70 k/cm^2 before bursting, corresponding to a tension of 300-350 k/cm^2. Three types of specimen were tested in compression, rods, unwelded and welded tubes and the results were shown graphically. Engineer V.I. Girsh, and laboratory workers V.D. Klimov and Yu.N. Orlov participated in the work described above. There are 9 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc.

Card 4/5

1 2390

41962
S/549/62/000/106/001/010
I003/I203

AUTHORS: Makarov, I.I., Cand. Techn. Sciences and Makarova, V.I., Cand. Techn. Sciences

TITLE: Properties of welding joints between thin plates of various heat-resisting materials

SOURCE: Moscow. Vysshee tekhnicheskoye uchilishche. [Trudy] no. 106, 1962. 47-65. Svarka tsvetnykh splavov i nekotorykh legirovannykh staley

TEXT: Welding of thin (0.5-1.5mm) sheets of different heat-resisting steels raises technological difficulties as cracks may be formed both during welding and during subsequent treatment. The present work elucidates some problems concerning heat-treatment, corrosion resistance, and vibration resistance of welds formed between thin sheets of X17H2 (Kh17N2) steel and thin sheets of either 1X18H9T (1Kh18N9T) steel or hardenable X12H19 (Kh12N19) steel. The results of the investigation showed that satisfactory welds between sheets of (1Kh18N9T) and (Kh17N2) can be obtained by the argon-shielded-arc welding process, using direct current and (1Kh18N9T) wire. Cooling the edges during welding

Card 1/2

increases the vibration resistance of the weld by up to 15%. The static strength of the weld is equal to that of the 1Kh18N9T steel, up to a temperature of 550°C and cannot be increased by heat treatment. By heating to 1030°C and quenching in water the weld is completely homogenized and the Kh17N2 sheet acquires a high degree of hardness. The short-time strength of butt welds between 1Kh18N9 and Kh17N2 sheets is the same as the ultimate strength of the Kh17N2 sheet. Welds between 1Kh18N9T and kh17N2 are less sensitive to stress raisers than those between 1Kh18N9T sheets. Kh17N2 steel and Kh12N19 steel can be successfully welded only when the sheets are in the annealed and in the hardened condition, respectively. In order to increase the strength of the weld between these steels it must be tempered and precipitation-hardened. The general conclusion of the authors is that the technology of welding and heat treatment of thin sheets of heat-resistant materials must be chosen for each individual case. There are 23 figures.

Card 2/2

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ORG: none

TITLE: The vibrational strength of welded joints of thin-walled pipes

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TOPIC TAGS: welding, welding technology, butt weld, weld strength, fatigue strength, electrode, pulsator/ UONI-13/45 electrode, VIAM-25 electrode, MUGP-5 pulsator

ABSTRACT: The results from an experimental study of the vibrational strength of various welded joints on thin-walled pipes are presented. The pipes used in this study were made from steel grades 10 and 20, and the types of welds used in the experiments are shown in Fig. 1. The welding of pipe specimens was carried out semi-automatically in CO_2, using UONI-13/45, VIAM-25 electrodes. An MUGP-5 pulsator device was used as the means of producing vibrations of the welded specimens. Curves are plotted indicating the durability of the welded joints as a function of the number of vibration cycles, the type of weld, and the pipe dimensions. It was found that the vibrational strength of welded joints of seamless, thin-walled, steel No. 20 pipes 22 mm in diameter with a wall thickness of 1 mm is greater than the vibrational strength of welded joints of planar specimens of average thicknesses. The removal of residual

Card 1/3